Question Number	Scheme	Marks
1 (a)	$\overline{x} = 11.42$	B1
	$s^2 = \dfrac{1310.464 - 10 \times 11.42^2}{9}$	M1
	$= 0.7$	A1
		(3)
(b)	z value for 95% CI is 1.96	B1
	$'11.42' \pm 1.96 \times \dfrac{0.8}{\sqrt{10}}$	M1
	(10.924…, 11.915…) awrt (10.92, 11.92)	A1 A1
		(4)
(c)	$Y \sim N(\text{“}11.92\text{”}, 0.8^2)$	M1
	$P(Y < 10.5) = P\left(Z < \dfrac{10.5 - "11.92"}{0.8}\right) [= P(Z < -1.775]$	M1
	$= 0.03837\ldots$ awrt 0.038	A1
		(3)

	Notes		Total 10
1(a)	**B1**	for 11.42 cao	
	M1	for use of $s^2 = \dfrac{\sum x^2 - n\overline{x}^2}{n-1}$	
	A1	for 0.7 cao	
(b)	**B1**	for writing or using 1.96 (or better from calculator 1.9599…)	
	M1	For use of $\overline{x} \pm z$ value $\times \dfrac{\sigma}{\sqrt{n}}$ ft their z value, $1 < \lvert z \rvert < 2$ and their 11.42	
	A1	for awrt 10.9 or awrt 11.9	
	A1	for awrt 10.92 and awrt 11.92	
(c)	**M1**	for identifying the normal distribution with the upper confidence interval value as mean and 0.8 as standard deviation (may be seen in standardisation)	
	M1	for standardising with 10.5, their mean (which must be in their confidence interval (including limits) from part (b)) and standard deviation = 0.8	
	A1	awrt 0.038 (tables = 0.0375)	